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## APPENDIX IV

## Analysis of ARC LIGHT Program by Target Zone (S)

1. (S) This analysis, through an examination of the history of the B-52 strikes, provides an assessment of ARC LIGHT in terms of the areas struck, the magnitude and dates of the missions, and their relative successes in an effort to identify discernible trends and patterns of B-52 employment.

a. A knowledge of the methods by which this analysis was conducted, and of some of the limitations governing the reliability of the conclusions, is necessary prior to their acceptance as completely factual data. The base data used as reference came from two sources--DIA and ODCSOPS, US Army. The data, in both cases, was in the form of "working papers"; since meaningful assessments of the ARC LIGHT program, and even basic information relating to ARC LIGHT, appear to be very inadequate in light of the significant cost and psychological effects of the ARC LIGHT strikes. Further, the intelligence which generated the requirement for many of the strikes, and bomb damage assessments for the strikes conducted subsequent to 13 October 1965, were not available to this agency at the time this report was completed.

b. The ARC LIGHT program was analyzed by means of a detailed map study of the reported strike areas; a grouping of strikes within the areas struck (regardless of the stated mission); an analysis of these groups to measure the effort expended, results achieved and apparent shortcomings of the missions; and finally, an examination of the entire program to identify patterns, trends, and operational policies which might bear improvement.

c. A map presentation of the ARC LIGHT strikes is included as Figure 1, ARC LIGHT Strikes, 17 June-15 November 1965, and a summary of all B-52 strikes is included as Tab A, entitled "ARC LIGHT Strikes by Area Grouping."

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2. (TS) Target analysis of ARC LIGHT indicates that many of the strikes have been flown against "suspected" VC strongholds. The stated purpose of the ARC LIGHT program is "to conduct saturation attacks against TARGET AREAS KNOWN to include VC occupied installations/facilities, but for which precise target data to permit pinpoint bombing attacks are not available." Of 32 missions flown between 28 July and 3 October 1965 (inclusive), 11 of the missions assessed as having little or no results were flown based on a stated objective of striking SUSPECTED VC facilities.

An apparent relationship exists between the adequacy of the intelligence collection and evaluation effort relating to the ARC LIGHT strikes, and the effectiveness of the completed missions. Some examples of inadequate intelligence resulting in completely unsuccessful missions are:

(1) The MATCH TIP I and II strikes on 9 and 13 October respectively. A total of 42 aircraft dropped 2,140 750 lb bombs with a center of mass offset of 150 meters between strikes. Ground follow-up action, subsequently reported by the senior US advisor in the area, indicated that there were no large supply points, bodies, or blood in the area. Small quantities of clothing were found. The report further stated that "The earlier report of an equipment base and rice cache is believed to be the result of a snowballing of a translation error."

(2) The BIRCH BARK I and II, BIG STAG I, MOUNTAIN TRAIL and BIG STAG II missions (see Tab A--Grid Square BS), flown between 1 August and 20 September resulted in dropping 5,269 750 lb bombs in an area in which the centers of mass of all strikes fell within 16 square KM. (6.25 square miles). A review of the assessment indicates that the first three strikes (3,433 bombs) resulted in no damage. The fourth strike was flown because of a suspected communications center in the area. Ground follow-up found a dummy (bamboo) radio tower and a VC area which had apparently been abandoned for some time. The fifth strike was flown

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against "a traditional and well-secured VC stronghold"--the resulting impacts fell within the other four strike areas.

(3) Analysis of CHAIN SAW (Grid Square YS); GEAR TRAIN I, II, and III (Grid Square BS); HOSE REEL I, II, III, and IV (Grid Square YT); and DRUM FIRE I, II, and SUN COVE I and II (Grid Square YT) leads to the same conclusion. (CHAIN SAW-1420 bombs; GEAR TRAIN-2191 bombs; HOSE REEL-1835 bombs; DRUM FIRE, SUN COVE-4779 bombs. See Figure 1 and Tab A.)

(4) Conversely, there are examples, such as FOX DEN (16 July, Grid Square BR) and MAIN SPAR (13 August, Grid Square YD) which were marked by singular success and apparently based on reliable intelligence.

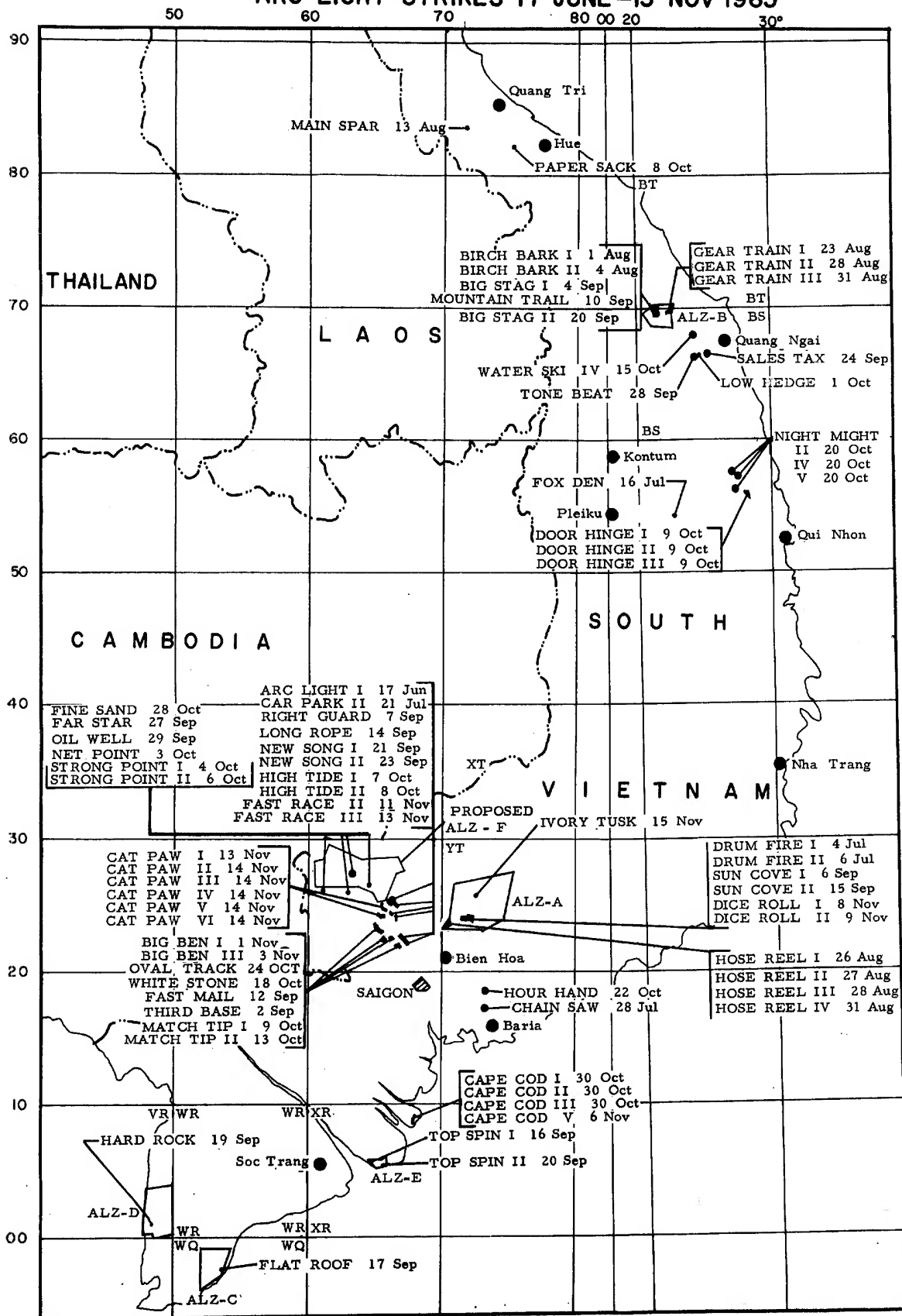
3. (TS) The analysis of the strikes by area pointed out the establishment of a significant pattern of re-strike intervals. A review of Figure 1, in particular the following series:

- a. HOSE REEL (YT).
- b. TOP SPIN (XR).
- c. All strikes in Binh Duong Province (XT).
- d. STRONG POINT (XT).
- e. BIG BEN (XT).
- f. FAST RACE (XT).
- g. MATCH TIP (XT).
- h. GEAR TRAIN (BS).
- i. BIRCH BARK I through BIG STAG II (BS).
- j. SALES TAX, TONE BEAT, LOW HEDGE (BS).
- k. CAPE COD (XR).

reveals that if a given area is struck, it will be struck at least once or twice more at three to five day intervals. With the possibility of an active enemy collection effort off Guam, any area subjected to a strike within three to five days prior to an observed mission departure could,

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**TOP SECRET****Fig-I****ARC LIGHT STRIKES 17 JUNE-15 NOV 1965**

1 UTM Square = 100 Kilometers

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almost without fail, estimate the exact time and area of the forthcoming strike.

4. (TS) Further, there appears to be a significant lack of updated intelligence and prompt photo interpretation of strikes, often resulting in a costly follow-up of unsuccessful missions. The strikes previously referenced in paragraphs 2a, b, and c above, also serve as illustration of this point. Although an admissible error in the intelligence effort might result in a strike against a valueless target, it would seem that photo interpretation and re-evaluation of the target area would be accomplished expeditiously enough to prevent repeat attacks on a fruitless target. An additional aspect of this is the reconnaissance by fire technique which apparently is in use. It appears that, because of a lack of detailed target locations, many of the strikes are exploratory in nature. If a worthwhile target is uncovered it is subjected to saturation by restrike. However, if no target is uncovered, a subsequent saturation is nonetheless accomplished.

5. (TS) Area analysis of the ARC LIGHT program brought another subject into focus--the concentration of effort, area concentration and target priority of the B-52 strikes. Figure II, a detailed presentation of the strikes in UTM square XT, and Figure III, a superimposition of a portion of UTM square XT on a map of Washington, D. C. (scale adjusted), are used to illustrate this subject.

a. Ellipse A, Figures II and III, circumscribes the center of mass coordinates of six ARC LIGHT missions flown on 7, 14, 21, 23 September and 7 and 8 October. This area (25 square KM) received a total of 5,199 750 lb bombs. Ellipse B circumscribes the C-O-M coordinates of the two fruitless MATCH TIP strikes on 9 and 13 October. This 1.6 square KM area received 2,243 750 lb bombs. Ellipse C circumscribes the C-O-M coordinates of the FAST RACE strikes and CAT PAW I, 11 and 13 November. This 28 square KM area received 2,448 750 lb bombs.

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b. Further analysis indicated that 54 percent of all ARC LIGHT missions through 15 November, representing 57.6 percent of the total number of aircraft flown, struck targets within a 50 mile radius of Saigon. This area includes the bulk of strikes in UTM square XT and all of the strikes in UTM squares YT and YS. Figure III, representing a portion of the XT square superimposed on Washington, D. C., indicates that 424 B-52 aircraft dropped a total of 20,794-750 lb bombs and 162 1,000 lb bombs in an area of roughly 456 square miles. As an aside, the OVAL TRACK mission, whose C-O-M coordinate falls directly astride the Pentagon, dropped 612 750 lb bombs.

c. Less concentration in this area might free a considerable number of B-52s to strike in other areas, such as the Pleiku Highlands and infiltration routes. Several such missions (e.g., MAIN SPAR) have resulted in outstanding mission success.

6. (TS) In summary, several operational procedures might warrant additional study and modification. They are:

a. The intelligence collection and evaluation effort relating to the selection of B-52 targets.

b. The photo interpretation and intelligence update efforts which preclude costly restrikes against nonlucrative targets.

c. The departure from a regular pattern of restrikes against individual targets.

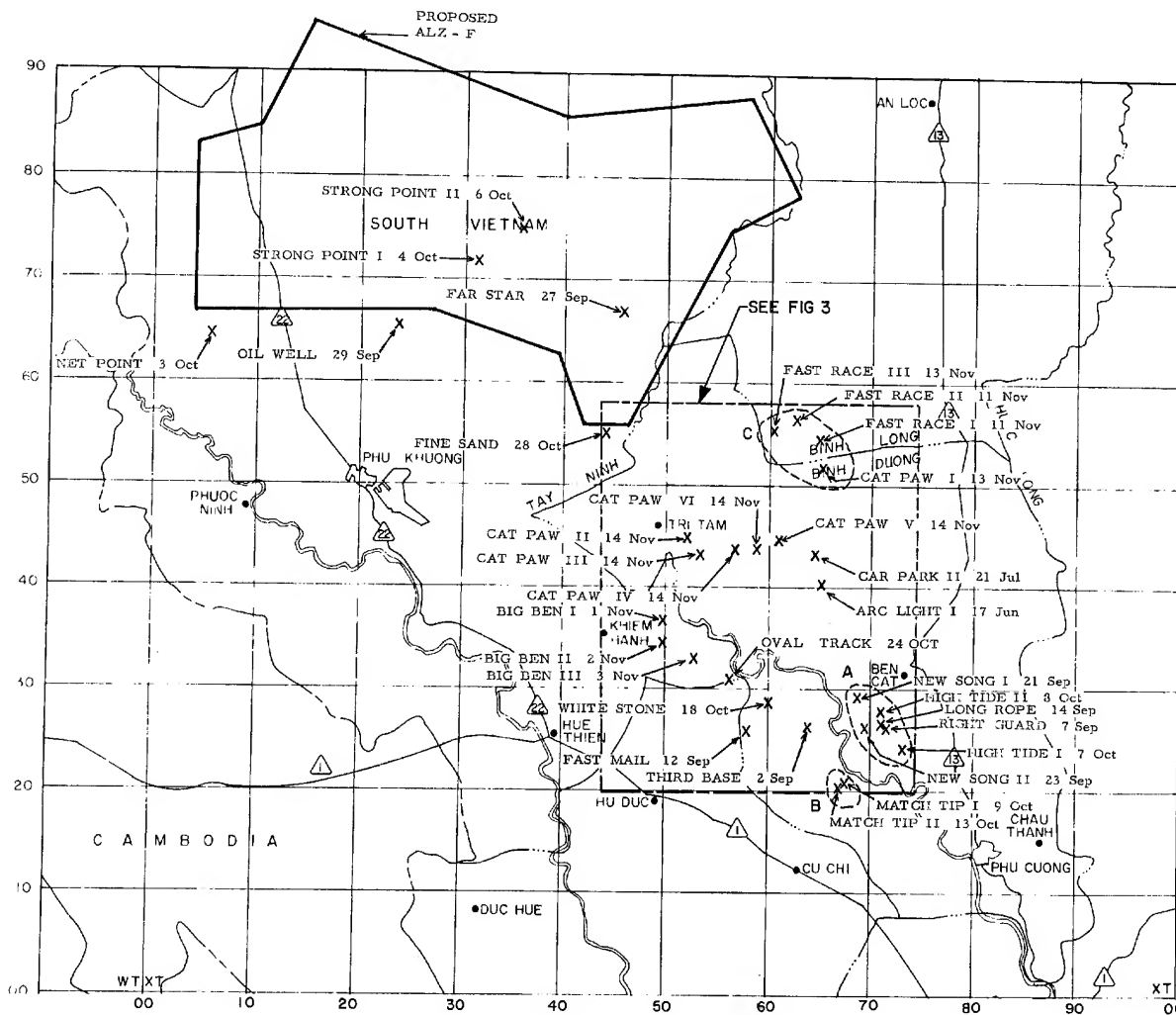
d. The requirement for a redistribution of effort to preclude an overemphasis in the Saigon area.

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Fig 2

ARC LIGHT STRIKES GRID SQUARE XT 17 JUNE - 15 NOV 1965 \*



\* SOURCE OF INFORMATION - DIA ASSESSMENT STUDIES (WORKING PAPERS)

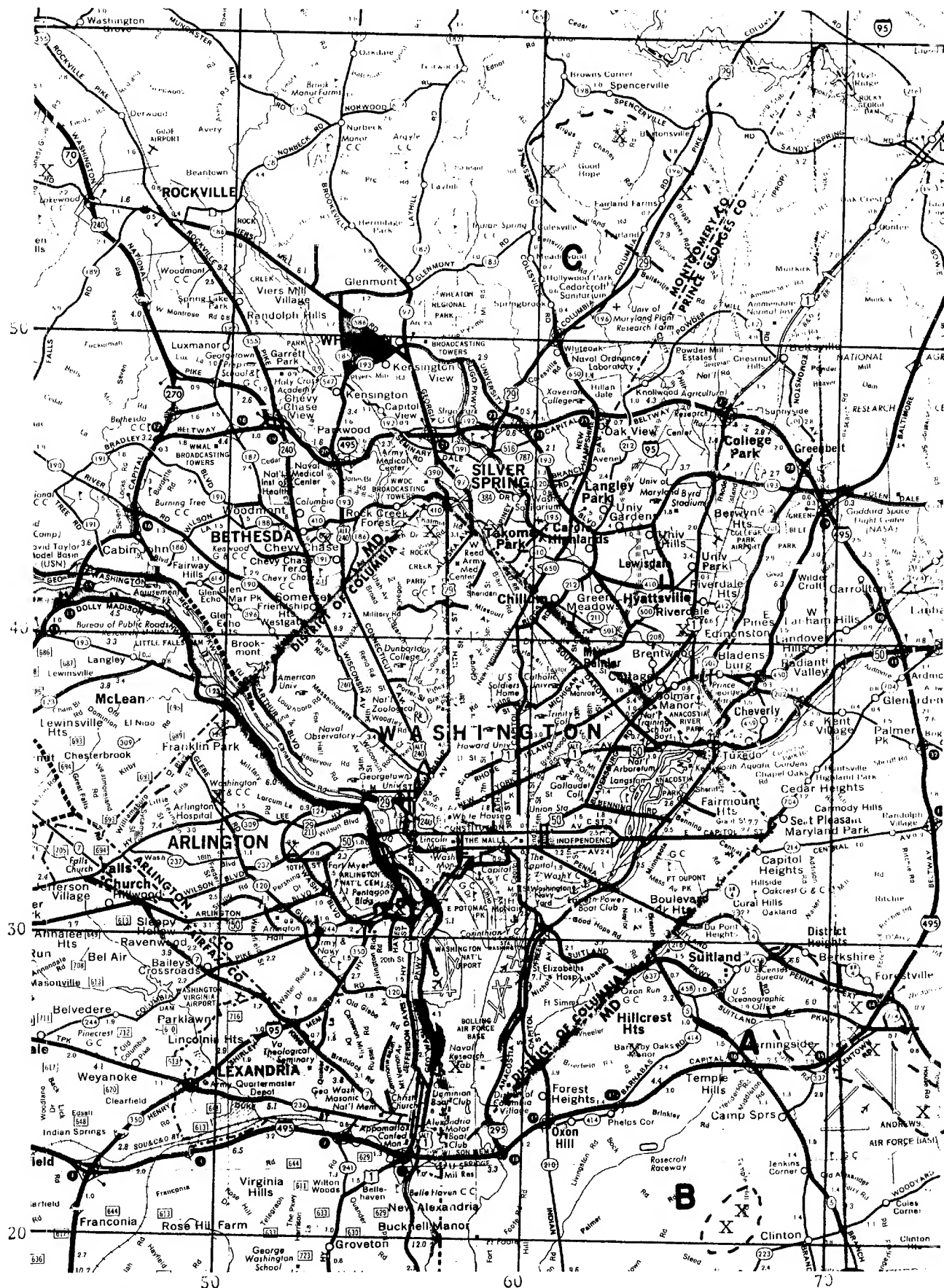
EACH SQUARE = 10 KILOMETERS

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Fig 3

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 ARC LIGHT STRIKES ON PORTION OF GRID SQUARE XT  
 SUPERIMPOSED ON MAP OF WASHINGTON D. C.



GRID SQUARE XT

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